NEWS OF THE THEATRES.

A week with four new plays, one of them from the pen of England's laureate, is at hand. It may be a week of triumphs, and it may be one of disappointments, but it is surely full of interest and importance for the higher grade of the drama. The Daly company will make known Tennyson's dramatic treatment of the "Robin Hood" romance; the Lyceum players will christen an American form of a comedy which only lately captivated Paris; the Kendals, finishing their engagement in Broadway, will introduce to New York a drama of serious interest, from English pens, and the Pitou company, at the Union Square, will make a change to a play by that earnest, ambitious, and prolific young writer, William Clyde Fitch.

In the new piece to be acted at the Lyceum to-morrow night there is no promise of seriousness. "Merry Gotham" has been freely adapted by Elizabeth Madbury from a French success of two seasons ago, "Paris Fin de Siècle," by Ernest Blum and Raoul Toché. This fantastic satirical comedy was presented at the Paris Gymnase Feb. 22, 1890, and enjoyed than a very successful season. Doubtless its excessive frivolity has been moderated for the Lyceum's stage. Miss Madbury, the adapter, is a factor in the importation of foreign plays. Acting as agent between the French authors and the American purchasers, she has at the same time frequently translated and adapted the pieces which she has disposed of, and her work generally has been creditable. Before this she was known as a rehasher of several one-act plays. "Merry Gotham" is Miss Madbury's most important essay, however, since the reconstruction of the French piece has been complete, and she will be judged by the degree of originality displayed in the revision. The play, it is announced by Manager Frohman, aims merely to "present a series of typical social silhouettes in light and fashionable social incidents." But the indispensable theme of love is followed, as in the French original, and there is just a suggestion of dramatic interest in at least one act. The story concerns the wooing of his old sweetheart by a wealthy young man from the country. He finds her in form as lovable as ever, but a rich widow, a gay woman, and still fond of him, though she must have six months' time before she can give up society and settle down. With this as an excuse it may be seen that "society" may easily be photographed by the dramatist. The scenes occur at a fashionable restaurant, an afternoon tea, and a ball in a "mansion on Riverside Drive"—which may astonish the modish ranks. The cast will naturally bring forward Mr. Kelcey as the honest hero, and Miss Cayvan as the gay widow. Eugene Ormonde will impersonate a wicked swell, who designs unsuccessfully to compromise the widow, and Mr. Le Moyne will have an eccentric character of the type usually created by that admirable actor. The subsidiary plot involves Effie Shannon and E. J. Ratcliffe, and Fritz Williams and Bessie Tyree in love affairs. New scenery has been painted and new gowns will be shown. Manager Frohman has planned that "Merry Gotham" shall last through the Lenten season. During the run the Thursday matinées will be abandoned. After Lent there will be a new American comedy at the Lyceum.

On Thursday night, at Daly's a play by Lord Alfred Tennyson will be performed for the first time. The event has been anticipated long. It may prove a notable achievement for our stage, which, after all, needs the encouragement that is implied in a contribution from the great poet. It is true that Tennyson has not hitherto succeeded in adapting his genius to the practical limitations of the theatre. His gloomy tragedies are not recalled by our playgoers, and the memory of them is not pleasant with those English managers and actors who essayed to interpret them. There had been, indeed, no hope that Tennyson would ever again write for the stage, until Manager Daly interested the poet and revived an old ambition. As a result, Lord Tennyson's poetic comedy, "The Foresters," dealing with the always romantic though ancient love of *Robin Hood* and *Maid Marian*, will be played by Daly's company on Thursday night. Sir Arthur Sullivan has written music for the comedy, and the hearing of that, too, will be an event in itself. Miss Rehan will, of course, play *Maid Marian*; John Drew will be the dashing *Robin*, and for *Friar Tuck* and all the other personages in the merry tale there will be competent representatives, selected from Daly's array of performers. With new scenery throughout and a promise of picturesquely accurate costumes besides, the production should not lack completeness in any detail. For weeks the company have rehearsed this play, yet it is known that Daly has not counted upon an extended run, his purpose being rather to delight a small but thoughtful public in a manner which shall leave a memorable record. It has been said many times that Tennyson wrote "The Foresters" first for Ellen Terry and later for Mary Anderson; and this may be true. It is to Daly's credit that he has been bold enough to produce the play and enterprising enough to buy it. The final performances of "Love in Tandem" at Daly's will be given on Monday, Tuesday, and Wednesday night, and at the Wednesday matinée.

The test of versatility will this week be applied to the Pitou company. Last week the Pitou players were measured for their ability to interpret farces, as shown in "The Last Straw;" but that piece has not been a fair medium for a conclusive verdict upon the strength of the new troupe, and so a change will be made to-morrow night. W. Clyde Fitch's drama, "A Modern Match," will then be performed for the first time before a New York audience. It treats of modern New York life, and aims to reflect some serious phases of the doings of society as Mr. Fitch understands it. The chief personage is a banker's wife, who, upon her husband's failure in business, returns his proposal that they bear their misfortune philosophically and heroically, and elopes with a wealthy man and villain. This character is assigned to Minnie Seligman, whose generally powerful and intelligent acting seems to carry a guarantee that the role will be made vivid and interesting. The contrasting female in the society of which Mr. Fitch writes is the wife of the banker's partner. In his despair she is his true helpmate and consoler; but he is the weak one in this case, and he ends his life by suicide. The wicked wife, Mr. Fitch says, is "a model of the badly reared society girl." Other characters in this story are supposably types of the 400; and they will be impersonated by trained actors like Wheatcroft, Backus, Faversham, Leslie, Frankel, Thompson, Adeline Stanhope, Jane Stuart, Ida Vernon, and Vida Croly. The engagement of Pitou's actors has several weeks yet, and they have other plays in readiness in the event that a change seems warranted.

The German stars this week are Emil Thomas at the Amberg and Mathilde Cottrelly at the Thalia. Thomas added to his triumphs last week by an admirable character sketch in a new play, "Der Millionenbauer" ("The Millionaire Farmer"), by Max Kretzer. The drama is not new in its story, but it is rather cleverly written, and the Amberg's audiences have liked it so well that it will be repeated this week. At the matinées Herr Thomas will appear in "Kunst-Bacilius." Mrs. Cottrelly's return to the Bowery German stage has delighted her old admirers, who have been very generous in their response. She is somewhat stouter than in her comic opera days, and her voice is not so sweet, but the unflagging humor and the thorough originality of her work are still to be commended. To-morrow night she will be heard in "Der Gold Onkel."

In half a score of entertainments presented on the city stage this week the public interest is chiefly in the work of the "stars" who dominate them. Only in one instance—that of the Kendals at Palmer's—is there a promise of an outright novelty in the play to be performed. The Kendals, starting their second and last week at Palmer's, will use to-morrow night for the first New York presentation of a serious drama called "Kate Kavanagh," the work of Mrs. Oscar Beringer and Cal Graves, both of London, the first named an actress-manager in that city. It is in a prologue and three acts, the scenes being laid in England and Brussels. The Kendals tested this play a few weeks ago in St. Louis, and later it was acted in Chicago. It is not, therefore, likely to be harmed by insufficient rehearsal. The theme is essentially dramatic and somore. "The Squire" on Tuesday, "Still Waters Run Deep" on Wednesday, "A White Lie" on Thursday, "The Queen's Shilling" and "My Uncle's Will" on Friday, and "The Ironmaster" on Saturday are the other changes in the Kendals' programme for this week, which may be their farewell for a year or so. Next week will see the Palmer stock again on the home stage, and in a new comedy, "Col. Carter of Cartersville," adapted by Augustus Thomas from the well-known story of the same title. The star at Niblo's this week is Lydia Thompson, who, having long forsaken burlesque and resolutely turned her back upon variety farce, now comes forward in a triple bill of light comedies, suggesting at once that Rosina Vokes is her model. But Miss Thompson will be welcome in any entertainment. The trio of pieces announced for her brief engagement at Niblo's consists of a drama, "A Bad Penny;" a comedietta, "Uncle Dan," and a farce, "Bric-a-Brac Shop." Not any of these is absolutely new, it is safe to say, though the titles are unfamiliar. Miss Thompson's leading comedian is Alf Hampton, and her company are Ennnie Fossette, Harry Hanscombe, Annie Darnley, Louis Howard, H. W. Montgomery, and others. Harlem's star is Rose Coghlan, who has never been in better artistic mood or in more graceful physical form than during this season. For her engagement at Hammerstein's Opera House she has chosen to lay aside the frivolity of "A Night's Frolic," and substitute for it the deeper sentiment of "Lady Barter" which is the work of Miss Coghlan's brother, Charles, who will play the principal rôle, thus making his first appearance on the local stage since his notable season with Mrs. Langtry at the old Fifth Avenue. John T. Sullivan will play *Lord Brent*, and the cast in all the other rôles is sure to be strong. Charles Coghlan has directed the rehearsals of his play. The curtain raiser is "Nance Oldfield," adapted from Charles Reade's one-act play, "Art," and Miss Coghlan will appear as *Nance*. At the West Side Grand Opera House the dramatic luminary is N. C. Goodwin, Jr., who returns to revive the Richardson-Yardley farce, "The Nominee," which gained a marked success at the Bijou some time ago. Goodwin has seldom had a more valuable piece in his repertory than this laughable tale of the frivolous husband, the suspicious mother-in-law, and the angelic wife. The curtain raiser is William Yardley's one-act play, "Art and Nature," derived from the same source as Rose Coghlan's "Nance Oldfield;" and in it the principal rôle will be assumed by pretty and graceful Mabel Amber.

A quintet of male stars are appealing for metropolitan favor with marked success at five leading Broadway houses. William H. Crane at the Star, Charles S. Dickson at the Bijou, Richard Mansfield at the Garden, J. K. Emmet at the Standard, and Francis Wilson at the Broadway, form the meritorious array. The money making ability of an actor is hardly a criterion of his artistic deserts, but it is an American way to measure success by the dollars that it earns; so the monetary triumph of young J. K. Emmet will be generally accepted as proof of his dramatic worth. Surely, he seems to be a complete satisfaction to his audiences at the Standard, where he now enters upon the second week of his first Broadway engagement. His earnest sincerity of endeavor to please counts for much in his favor. He is a close imitation of his extravagantly admired father, he presents "Fritz in Ireland" with excellent scenery and cast, and on all these accounts he deserves his prosperity. In "For Money," at the Star, Comedian Crane continues to convulse the audiences with his ludicrous caricatures as the *Counsel* and the *Commodore*. Paul M. Potter has written a new play called "The American Minister," and preparations for its production at the Star on April 4 are already being made by Crane and his company. The new work is announced as a comedy drama, "based upon a consistent and well developed story, with strong situations and sparkling dialogue." Crane has a couple of months longer to remain at the Star, and "The American Minister" is expected to complete his term in town. Charles S. Dickson will find it necessary to remove from the Bijou at the end of this week. He was out of the cast of "Incog" two nights last week on account of a sudden and severe attack of bronchitis. Young Robert Edson filled the vacancy acceptably. The Lederer company is evenly balanced and the temporary absence of the star hardly caused a material hiatus. "Incog" will probably have a chance on some other city stage at the close of its Bijou term. Max Freeman is to replace J. L. Otto never in the rôle of *Dr. Siegfried Barbanus* to-morrow night, and he will also assume the direction of the stage. This is the first change in the company since its organization, early last fall. "Incog" will move away from the Bijou to make room for "A Night at the Circus," a rollicking farce, in which sprightly Nellie McHenry performs. Richard Mansfield is nearing the end of his engagement at the Garden, where he has received flattering patronage. "Ten Thousand a Year," the talented Miss Sheridan's play, begins its fourth week to-morrow night, and it will probably remain the Garden's bill until the close of Mr. Mansfield's engagement. Contrary to his usual custom Mansfield will not play in town during the summer season this year. He intends taking a long and thorough rest. Audiences continue to shower bountiful praise upon "The Lion Tamer" at the Broadway. There is jollity in Francis Wilson's work. The 100th performance is to be celebrated by the distribution of mementoes especially designed for children. The gifts will be presented at every performance during the week of April 4. There is no hint concerning the date of departure of Wilson and his clever company from the Broadway.

In new plays the past week has been interesting out of town, as well as in it. At the Boston Museum Henry Guy Carleton's comedy, "The Princess of Erie," has been acted. The experts are at odds on its merits, but the Museum audiences seem to like it. The theme is American, and is not new, though the plot is ingenious. In far-off Portland, Or., a drama called "The Minister" has been quietly acted by a local company. Interest in this work centres in the fact that it is from the pen of Sedley Brown, an actor in Charles Frohman's forces, and husband of Henrietta Crosman of "Gloriana." Brown is an ardent and industrious playwright. Rose Coghlan tells The Sun that she will not produce her brother Charles's new piece, which she has not yet rechristened, until April 18. "Under Ground" is a five-act addition to next season's sensation dramas. It is by Daniel L. Hart, and is another variation of the old stage story of the mining regions. "The Tradesman" is a farce by Neil Wesley, who promises that it will be an early fall novelty. William H. Lytell, an old-time comedian and manager, has completed a melodrama for the fresh season. H. Grattan Donnelly, the Philadelphia maker of farces like "Natural Gas," is at work on new pieces for J. M. Hill and Joseph Haworth. In Buffalo, to-morrow night, Charles H. Hoyt's newest comedy, "A Temperance Town," will be acted for the first time. All the Hoyt pieces have a long test out of town before they are deemed ready for the metropolitan verdict. Georges Sand's romance, "The Mauprats," has been adapted for the stage by William H. Hitte of Wilkesbarre, and in that city it was acted recently with indifferent success. The adapter appeared in the cast. The other actors were hired in New York for one performance only. Daniel Sully, the Irish comedian, made an essay with a play by Edward Frieberger, but a few performances convinced Sully that the play wasn't suited to him and he sent back the manuscript. Rhea's recent addition to her repertory, a Sericé play, adapted into English as "Gossip," is not so new in America as the actress probably supposes. It was acted at least twenty years ago under the title of "The Woman Who Talks"; but Rhea could hardly be expected to know that. Jefferson, Klaw & Erlanger have accepted for production next season a comedy called "The Prodigal Father," by Glen Macdonough, a young writer, the son of Thomas F. Macdonough by his first wife, Laura Don. Inigo Tyrrell, a San Francisco actor and dramatist, is in town preparing to make known a play from his pen, "La Cosaque," which he tried first in Frisco as "The Raobi," with Lawrence Hanley in the title rôle. Tyrrell is clever, but unfortunately he has been detected in a literary seizure before this. Henry E. Dixey's one-act play, "The Major's Appointment," made by George Backus out of a *Century* story by Mrs. Julia Schayer, seems to be good. Dixey played the piece last week in Brooklyn. "Chums," a one-act play by Thomas Frost, will be acted for the first time in Philadelphia next week by the Charles Frohman "Jane" company as a curtain raiser.

In a fortnight there will be an end to "The Country Circus," so far as its Academy engagement is concerned. The big show of realisms, with its horses, ponies, dogs, and picturesque cavalcade, its men and women in glittering armor and rich costumes, and its quaint pictures of New England rusticity, will go away to Boston on March 27 for a spring engagement. Next season Klaw, Erlanger, Eddy & Jefferson will have two "Country Circus" troupes in transit, and each company will play in large cities. On Wednesday of this week there will be a toy matinée at the Academy, designed especially for children. They will get horns, clappers, drums, dolls, and other things. It will be a merry occasion, from all accounts.

A sample week of "The English Rose" at Proctor's has made it evident that the cast gotten together by Proctor & Turner lacks only facility and harmony to gain its way into favor with the west side multitude. Most of the actors rise superior to the play, which is conventional in theme, commonplace in language, and not ingenious in plot. Young Aubrey Boucicault will be an interesting figure among our actors before long. He is the author of a drama written in collaboration with Robert Buchanan, and by and by it will be acted in this city. "The English Rose," meanwhile, is sure of a couple of months' time at Proctor's. Most of the players are engaged for from four to six weeks. The spring season at Proctor's may be devoted to a new English comedy.

Entertainments in which frivolity predominates still hold public favor to a generous extent. "A Trip to Chinatown" is nearing its 150th performance at Hoyt's Madison Square, yet there is no sign that the merry piece will need a rest before warm weather. New things, added last week, have caused favorable comment. The Daly sisters are again seen in their picturesque dance, preceding the more novel gyrations of Loie Fuller in the "serpentine dance." On April 1 there will be a souvenir to commemorate the 150th performance of Hoyt's clever farce. "Tuxedo," at the New Park, is another variation of the high-class vaudeville farce. Its second city visit has served to strengthen the pleasant verdict called forth on its first performances. If there has been any change, it has been in the direction of added briskness in the singing and dancing intervals. The present week is the final one of the show at the Park, for another merry entertainment waits an opportunity to enter there. "The Last of the Hogans" at Harrigan's may properly be classed among the lighter entertainments current on the city stage. To-morrow night will mark its 100th performance; but there will be no souvenir, because Manager Hanley is of the opinion that souvenirs possess no special inducement for the theatregoing public. He may be right, but nearly all the managers in town will argue with him eloquently on this point. "The Last of the Hogans" is sure to endure until Harrigan's season is at an end. "Uncle Celestin," the Casino's piece, is farce variety in a picturesque form. It has attracted the multitudes who like light opera, naturally, and it has also gained the attention of the larger public who are prone to variety shows in disguise; moreover, it has delighted both classes, and so it is destined to hold the Casino's boards for several weeks yet. But at the Casino there is always a preparation for the unexpected, and so a new German opera, "Sunday's Child," has been in rehearsal during the past week. The squabble between Sylvia Gerrish and Annie Meyers, who are in "Uncle Celestin," is not serious. If Miss Gerrish should take it into her head to go away to Europe, as some of her friends hint she may, there would be an excellent substitute for her in Dora Webb, who has already been coached for Miss Gerrish's rôle. To-morrow night twelve of the Casino girls, who have mastered the intricacies of the skirt dance, will give a twelve-fold edition of that terpsichorean craze, and a new movement called the "rainbow dance," in which they will dress in contrasting tints and appear on a darkened stage with steam floating before the lime lights. This should be a pretty affair.

Benefits, readings, and Sunday shows in theatres are still numerous, and generally they are interesting. Cromwell's illustrated lecture at the Grand to-night will be about "London, the Modern Babylon." Cromwell is probably prejudiced, but he is eloquent and witty, just the same, and he has the advantage of an intimate study of his subject. It is noteworthy that he has gained many new auditors this year at French's theatre. In the concert hall of the Madison Square Garden the first orchestral concert in the series by Anton Seidl and his men will be given to-night. The soloist will be Margaret Reid, an American girl and a graduate of the Paris Conservatory. She will also be heard on Thursday afternoon of this week in conjunction with Seidl's orchestra. Mark Murphy, the comedian, announces two Sunday concerts to-night, one at the Standard and the other at the Union Square. An alternation of the programme at each theatre will enable him to please two audiences with a single set of performers. To-morrow afternoon at the Amberg the widow of Richard Koenig will benefit. Koenig was Amberg's business manager for six years, and used to manage the Western tours of the principal German stars. His widow is well-nigh destitute. The first act of "Fledermaus" will be given by members of the German opera company. Robert Frazer, who was once a clown in "Humpty Dumpty" revivals, and has in late years been a stage manager, has failed in health and is in need of assistance. On Tuesday afternoon he will benefit at the Broadway. The readers this week are George Riddle at the Madison Square Concert Hall and Sarah Cowell Le Moyne at the Lyceum. An interesting lecture, "A Trip Around the World," will be given at the Windsor this evening. In this tour Prof. Frutchey illustrates a trip on the lines travelled by Nelly Bly. He will show glimpses of the four quarters of the globe, including England, France, Italy, Egypt, Arabia, China, and Japan, returning to the starting point in this city. At Daly's to-morrow afternoon a matinée for the free French school in South Washington square will be given. The object is unqualifiedly worthy, and, beyond a doubt, the entertainment will give full value for the money paid in by the audience. Lizzie Derious Daly, a soubrette who has frequently appeared in New York theatres will benefit at the Park on Sunday evening, March 27. She has been ill and unable to fill her engagements this season.

An Irish farce and an English farce will appeal to east side audiences this week at Jacobs's and the Windsor. "The Dear Irish Boy," at Jacobs's, is not at all new, but it is as good as ever, because its actors have not been changed of late, and its scenic equipment has been elaborated. Plays of this type are always popular at Jacobs's. At the Windsor "Dr. Bill" is the change of play. This will be its first Bowery visit since its original run at the fashionable Garden. Belle Stokes is the new interpreter of the "kangaroo dance," and in the cast are Emily Maynard, Rachel Deane, William Wilson, Ernest Bartram, Daniel Jarrett, Ida Bell, Leighton Baker, and others. A one-act play by Charles Stuart, called "Bubbles," will be acted as a curtain raiser. It is unfamiliar in town. Next week the Windsor will hear M. B. Curtis's brother, Frank, in "Sam'l of Posen."

A near prospect of the fiftieth performance of "Gloriana," with the customary accompaniment of a souvenir, is a good sign that James Mortimer's adapted farce has taken a firm hold at Herrmann's. It is acted with spirit and uncommon care by one of the Charles Frohman comedy troupes, and is specially commendable for the smoothness and celerity with which it is performed. The curtain raiser, "Frederic Le Maître," is a most agreeable preface to the evening's enjoyment. The fiftieth performance of "Gloriana" will occur on March 30. Fashionable theatre parties at Herrmann's are seen frequently. On Tuesday or Wednesday night Louise Thorndyke-Boucicault will take the rôle which serious illness compels Henrietta Crossman to relinquish. These two actresses are all but unrivalled as modishly eccentric comediennes, although their looks and methods are wholly different. Miss Crossman was remarkably successful in giving a distinction of humor to *Gloriana*, and there can be no doubt that Mrs. Thorndyke-Boucicault will impart quite as unusual drollery to the character, but there will be much curiosity among those who have seen Miss Crossman's performance to observe the departures which her successor may indulge in. There can hardly be any sacrifice of fun, however, in consequence of the change.

A pair of plays depending upon realisms for their success consists of "The Still Alarm" at the Harlem Columbus and "Jack Royal of the 92d" at the Bowery People's this week. The actor who won a fortune in "The Still Alarm" is Harry Lacy, but he is now the star of "Jack Royal." Both plays prosper, the older one being conspicuously popular with the masses who support the weekly change theatres. Lacy's newer play was originally written to his order by A. C. Wheeler, but it has since been revised by at least four other pens, so that it would be difficult to properly accredit its authorship. It was first seen in town at the People's, and its second engagement there is likely to be successful, now that it has been reconstructed to suit the Bowery taste. Lacy continues to impersonate the heroic and amazingly reckless *Jack Royal*, and in the support Mary Hampton is the loving heroine. The sensations in this drama are afforded chiefly by the use of a pair of genuine horses, hitched to a gun caisson, in a particularly exciting scene of the play. In "The Still Alarm" the real fire engine, the prancing steeds, and all the other familiar accessories of Joseph Arthur's stirring story are retained intact. The man who hasn't seen this play is behind the times, according to the managers. M. J. Gallagher continues to play *Jo Jones*, and he is as careful as ever, notwithstanding he has impersonated the rôle about 2,000 times without missing a performance.

The two miscellaneous resorts in West Twenty-third street are doing well. Each offers an entertainment diverting and interesting. That skilled and famous French magician, Bautier De Kolta, is the Eden Musée's star attraction. His wonderful illusion, "The Cocoon," will be revived to-morrow night, and it is to be freshly enlivened with several new features. The nine young women, whose beauty, grace, and shapeliness added a deal to the former triumph of the illusion, have been retained, and will again present their admirable animate picture of the silk industry. De Kolta's supply of tricks seems inexhaustible, and their execution is accomplished with ease and grace by this master wizard. The Hungarian orchestra continue to give good concerts each afternoon and evening, while new things in wax are frequent. The show at Koster & Bial's hall is extensive and various. Singing, dancing, juggling, and general fun making make up the programme. Dagmar and Da Celle sing operatic selections, Maria Paera warbles naughty French ditties, Carmencita dances in her familiar wild way, John Le Clair juggles odd objects expertly, and there is no lack of trained lanzo producers. The musical section overflows with good things. Besides the Spanish students, who are guitarists of exceptional ability, there is potency in the travest, on "Fra Diavolo." Jennie Joyce, Grace Stanton, Madge Lessing, and Agnes Evans have the leading roles in the burlesque, and Harry Kennedy and the three Judges are the new specialty recruits.

This will be a jolly week at Tony Pastor's. On Thursday, March 17, Business Manager Sanderson is to have his annual benefit, for which preparations have long been under way. The list of accepted volunteers is vast, and includes the very cream of the vaudevilles. Among those who will appear are such established favorites as Maggie Cline, Lydia Yeamans-Titus, Helene Mora, Nellie Maguire, Mabel Fenton, Bonnie Thornton, Mlle. Alcertina, Eva Butler, Lizzie Daly, James F. Hoey, Ross and Fenton, John E. Drew, Frank Bush, Girard and Earle, Glenroy brothers, Guyer and Goodwin, the three Judges, and others. Beautiful art souvenirs will be presented to the workers and to Sanderson's immediate friends, while a handsomely designed programme will be distributed promiscuously. The regular bill is up to the usual standard. The quartet idea remains in vogue, this week's leaders including Maggie Cline, Frank Bush, Lydia Yeamans-Titus, and Nellie Maguire. Other specialists of varied merit and popularity engaged are John F. Drew, J. W. McAndrews, Daly and Devere, James C. Midway, Jerome, Harry Stark, and Prof. Shedman and his troupe of performing dogs. Next week Manager Pastor is to celebrate the twenty-seventh anniversary of his career as a New York amusement caterer.

POETRY WORTH READING.

Bound for Russia.

On the wide ocean, late, I watched the ships
Their pathless way across its desert hold,
Bearing the commerce of a mighty world,
With priceless cargoes stored, and wealth of gold.
And some there were bristling in armament,
Like giant champions listed for the fray;
But one passed by upon her quiet way
To whom our hearts with tears and prayers outwent
In kindly burst of human sympathy,
A messenger from Carolina's strand,
With food and greetings for a starving land.

SUSAN ARCHER WEISS.

Going Up the Alps.

From Macmillan's Magazine.

I.

This is the way that you must go,
Where no stray sunbeam, slantwise thrown,
The twilight gilds with vaporous glow,
Through woods dim dreaming, hushed and lone.
The pathway serpents to and fro,
Fair is the green roof over head
Which rises with you as you rise,
And green upon the slope that lies
Above you and beneath is spread
A fairy tangle: ivy, fern,
Seedlings, and mosses of untold
Luxuriance flaming into gold,
And sometimes at the zigzag's turn
A wayside shrine in miniature,
Picture, or image best, behind
A rusted grating niched you find.
The monks of Engelberg would lure
Your vagrant thoughts to Paradise;
And sure, not far from here it lies.
And now some iucent streamlets gush
Into its brimming trough, and now
The sudden snapping of a bough
Is all that breaks the breathless hush.

If—if you were not quite alone!
The morn, the woods, were twice as sweet
If just one other pair of feet
Were climbing here beside your own!

II.

This is the way that you must go,
Across the rolling pastures wide,
Where Alpine thistles, nestling low,
And clustered gentians, in the pride
And splendor of their purple, blow;
And all the exquisite pure air
With tinkling cowbells, chiming clear
Their homely chorus to the ear,
Is garrulous; and everywhere
Riots and laughs the sunshine bold.
You loiter at the water trough
And make a fountain toilet, doff
Your hat and dip your face, and hold
Your inside wrist upturned to meet
The crystal, cool, refreshing flow
That gurgles from the pipe, and so
Through all your veins allay the heat.
Then, strenuous, charge the sheer ascent;
Which won, you pause, elate though spent.
Deep, deep lies Engelberg! but note:
Titlis, that wears his hood of snow
In one great wimple on his brow,
Soars for your toil scarce less remote.

If—if some other paused here too!
How fair these summits and these skies,
If just one other pair of eyes
Were gazing at them now with you!

III.

This is the way that you must go,
The torrent with the iris sheen,
Faint where its thunderous waters grow
A sleeping foam-mist, to be seen
Spanning its base a vivid bow,
Must not deflect your steps, nor yet
The lake set in the mountain's lap;
Nor the white hostel, as might hap,
Tempt you to tarry and forget.
A summit nearer heaven than this
Invites you. Up! Each height attained
Shows one yet loftier to be gained;
Till lo! a reeling precipice,
Whence, if your sight with space can cope,
As on a cloud the lake of all
The four Cantons mapped faint and small.
Here, on the green and sunny slope
Beside the brink, you rest, and bless
The gods for all the loveliness
Which haunts these solitudes divine;
Rest and rejoice! the day is long,
And life is an Olympian song!
How pure the snows on Titlis shine!

If—if with rapture not less keen
Some other heart exultant swelled!
If just one friend of friends beheld
The perfect hour, the perfect scene!

E. C.

A New Version of an Old Hymn.

From the London Tablet.

I.

When the last faint ray has shone,
Matthew, Mark, and Luke, and John,
Bless the bed I rest upon.

II.

Pray that sins with work may cease,
Grace this kindly time increase,
Pray, Evangelists of Peace.

III.

Music of your spell suggest
Thoughts to linger in my breast,
Till they charm my heart to rest.

IV.

Jesu's Face, which love can find
Fair in Holy Writ enshrined,
Light the vision of my mind.

V.

So shall I not sleep in death
Though your true Evangel saith
I must breathe my final breath.

VI.

Then wrapped in my winding sheet
Prayers for me once more repeat,
Holy Four at head and feet.

VII.

Bid my soul a glad release,
Bid her rest that shall not cease,
Lovely Messengers of Peace.

R. J. W.

O House of Many Mansions.

From the Boston Transcript.

O house of many mansions,
Thy doors are open wide,
And dear are all the faces
Upon the other side.
Thy portals they are golden,
And those who enter in
Shall know no more of sorrow,
Of weariness, of sin.

O house of many mansions,
My weary spirit waits
And longs to join the ransomed
Who enter through thy gates,
Who enter through thy portals,
The mansions of the blest;
Who come to thee aweary,
And find in thee their rest.

Thy walls are not of marble,
O house not built with hands;
I sigh for thee while waiting
Within these border lands.
I know that but in dying
Thy threshold is crossed o'er;
There shall be no more sorrow
In thy forevermore.

E. S. GENNISON.

Helen.

From the Spectator.

I am Helen; and my name
Is a glory and a shame;
For my beauty was Earth's crown,
And my sin shook cities down.

Oh, the days, and oh, the dances,
When I was queen
By the glamour of my glances
And the splendor of my sheen!
My life was all romances,
And no dull days between.

From the golden dais
Where I reigned alone,
As a woman's way is,
I descended to a throne,
And my life, tame lately,
Leapt as a mountain stream,
Now crept still and stately
As a river in a dream.

He came:
In his eyes was flame;
And a new desire,
Unknown by name,
The godhead dire
No god can tame,
Took all my frame
With fire.

The years, the ten swift years, are fled,
Troy is fallen, and on my head
Lies the guilt. Her princes dead
In the darkness thronging me round,
Showing each his bleeding wound,
No word speaking,
No wrath wreaking,
They pass in silence one by one;
And when I think the dream is done,
Lo! the white-haired King appears,
Kneeling, as he bathes in tears
The hands that slew his son.

F. W. BOURDILLON.

A Gentleman.

From the Globe-Democrat.

"Are my biscuits light, John?" asks the charming young wife,
As she smiles on her husband; and he,
With emphasis, answers, "They're lovely, my life,
As light as the foam of the sea."

"Is the steak cooked to suit you?" she gently inquires;
And he says, as he smilingly notes,
"It might have been cooked at celestial fires,
And is tender enough for the gods."

"And the coffee; that pleases you, too, does it dear?"
She asked, overjoyed with his praise,
Which rather than strains of sweet music she'd hear.
"I never drank better," he says.

So she sits down beside him, and with him partakes,
And the truth no doubt will confess,
If John tells her lies, in the answers he makes,
He's a gentleman, nevertheless.

Ghazels in English.

From Essays and Studies.

The prisoned spirit is set free at last,
The seed up springeth to a tree at last;
The truant brooklet wanders through the mead,
But runs to meet his lord the sea at last;
The honey bee collects all day her store,
Yet homeward turns the weary bee at last;
The clouds that hide the beauty of the sun
Stretch out their fleecy wings and flee at last;
The stubborn lock defends the treasure-house,
But cunning locksmiths find the key at last;
My soul hath sought for bliss in every clime,
And finds its only bliss in thee at last.

Whatever fortune gives, in haste collect,
And seize the moment whilst thou mayst collect;
Disguised pilgrims fainting sore for food,
A meal of berries from the waste collect;
Disporting children on the shore the shells
The scornful sea has thither chased, collect;
The penetrating bees the hidden sweets
Deep in the lily's bosom placed collect;
Unwearied scholars bend them, o'er their books,
And words which time has nigh effaced, collect;
So, too, doth she to whom my songs are due
The lines my fevered hand hath traced collect.

BASIL L. GILDERSLEEVE.

NOTES ON SCIENCE AND INDUSTRY.

M. Chatelier, whose experiments in certain fields of chemical research have attracted such wide attention, has applied to a new series of metals and alloys the same method with which he determined—by means of the electrical resistances—the molecular transformations in metals at high temperature. The conclusion at which he arrives is that the metals which show no molecular transformation before fusing have electrical resistances whose variations are a linear function of the temperatures, have sudden variations in their law of growth. Some alloys exhibit progressive molecular transformation which, for the most part, takes place within certain limits of temperature and are not sudden in their nature or character. Another interesting fact made evident by the researches of M. Chatelier in this direction is that the variations of electric resistance for iron, aluminum, and their alloys, at a temperature above that of transformation, follow a law analogous to that of platinum and its alloys.

One of the most curious developments of commercial enterprise and industrial ingenuity recently exhibited is the importation into this country of a peculiar vegetable material from Oran, an Algerian seaport on the Mediterranean Sea. The fibre of this substance possesses the quality of being so elastic that it can be used as a substitute for springs and the like, in the manufacture of furniture backs and seats; it is so expansive, indeed, and so easily affected by higher temperatures in its dry state that, when packed, the bales have to be held in place by means of heavy steel bands. The peculiarity of this grass is that it thrives only around the volcanic slopes of Oran and flourishes up to within a short distance of the craters themselves—the latter being always in a semi-active state, and the earth around so warm that not a plant of any kind can thrive or is ever seen to grow except this steel-like product, and the practical value of which is likely to be fully utilized in future.

In *Dingler's Polytechnic Journal* Dr. Schott calls attention to the necessity, in the manufacture of glass for scientific purposes, of the cautious use of alkalies, in case such glass contains any boric or phosphoric acid, the fact being, according to Dr. Schott, that if any considerable quantity of alkali be present the surface of the glass soon loses its polish, being acted upon by atmospheric influences. According to this writer, if a glass be at all disposed to be hygroscopic, it can be made more serviceable by the addition of variable quantities of alumina, zinc oxide, and similar materials. It is also found that with phosphate glass the oxide of magnesium, potassium, and aluminum produce the least dispersion, and that crown glass, which contains oxide of barium together with phosphoric acid, has scarcely any dispersive action.

For facilitating the process of scouring and dyeing hanks of yarn, a mechanism is now proposed consisting of a series of rollers or spindles mounted in a frame and carrying the hanks, this frame having a vertical reciprocating movement given to it by means of chains, three of these being connected to pulleys mounted on an oscillating shaft, the latter receiving its movement from another chain connected by one end to a mounted pulley; the other end of the chain is connected to a stud fixed in a revolving disk, actuated by worm gear on the driving shaft of the machine. As the disk travels around with the stud toward the top of the machine, the hanks descend into the liquor, and, on the stud receding, they are withdrawn, a loose copper roller serving to keep each series of hanks distended. The hanks are thus revolved about the axis of the roller on which they are mounted by means of gearing pinions, the two central pinions being also in gear with a spur wheel, on the axis of which is fixed a ratchet wheel; this wheel is actuated by a pawl and lever, the latter receiving its motion by the reciprocating movement of the hank-carrying frame.

The triple-expansion mill engine, lately described as having been erected for a flax spinning mill in Belfast, Ireland, secures close regulation by means of two governors, and each cylinder has four Corliss valves. The use of a supplementary governor, remarks a mechanical journal, is becoming almost universal in establishments where even speed is a necessity; the main governor has, of course, a corresponding speed for each position in its range, and on its rising to give the earlier cut-off needed with a reduction of load, the engine would run at the increase corresponding with the new position of the governor—the supplementary governor steps in, however, and varies the length of the rod connecting the main governor with the detents, the result being to cut off the steam still earlier, and to bring the engine back to the normal speed. In practice, the action of the two governors is simultaneous, causing the variation of speed to be very slight and little more than momentary, even under widely varying loads.

M. Lepirre, a French artist, states that in demonstrating that sulphur melted at about 115° can be cooled in paper, he happened to use a lithographed card, of which the edges were turned up; upon taking away the card it was discovered that the lithographed characters were clearly and distinctly impressed upon the cooled surface of the sulphur, remaining thus after hard friction and washing. By repeated experiments in this direction he has succeeded in obtaining results of a very satisfactory character, removing the paper each time by a mere washing and rubbing process. It is found, in fact, that sulphur will receive impressions from and reproduce, in a faithful manner, characters or designs in ordinary graphite crayon, colored crayons, writing ink, typographical inks, china ink, lithographic inks—whether colored or uncolored varieties—and others. He also states that it will reproduce with remarkable exactitude maps.

In a recent article on meteorological phenomena, in their relation to certain questions now much discussed, a California writer argues that the amount of moisture in the atmosphere is much greater than is generally supposed, its capacity for sustaining moisture depending mainly upon its temperature; thus, the atmosphere at 100° Fahrenheit at the earth's surface is capable of sustaining, in an invisible form, moisture to one-fifteenth of its weight, or an equivalent of one pound of water to every inch of area—it being thus readily seen what an immense volume of water may possibly be discharged over any given area when the atmosphere and electric conditions are favorable for its sudden condensation, as in the case of what are called cloud bursts. Of the latter, this writer remarks, in explanation, that warm currents of air, highly charged with moisture, are frequently wafted by winds over mountains, where they meet with a cold atmosphere or a cold current, which suddenly forms dense black clouds, that sometimes drop their moisture in prodigious cataracts of rain—"cloud bursts," as they are usually termed.

Workers and artisans in metallurgy will be interested in the formula, lately published, of Horgan's process for coating sheet iron with lead, by means of which such admirable results are obtained. In accomplishing this result, the metal is first made free of scale by means of hot dilute sulphuric acid, then washed with water, and afterward transferred to a vat containing a solution of lime or other alkaline compound, which serves to prevent oxidation and acts as a flux. The sheet iron is now placed in a dilute solution of zinc chloride containing on the average twenty pounds of oxalic acid and ten pounds of sodium sulphite per ton of iron treated, these quantities depending upon the quality of the metal. After this immersion the sheets are passed through melted lead and allowed to drain.

The conversion of coal dust into fuel has for a long time been accomplished by various simple methods differing but slightly in their details; but it has recently been proposed, instead of the usual plan of using pitch to cement coal dust together to form briquettes, to resort to substances of a glutinous or farinaceous character, those including those obtained from wheat, barley, rye, or other cereals or vegetables, 5 per cent. to 15 per cent. of coal dust being found to constitute a suitable proportion. The mixture may be kneaded by hand and sets in a short time so that moulding under pressure is not really essential, though moulding may be resorted to for securing rapid manufacture. The product is said to burn with less smoke than the ordinary briquettes, and it is claimed that, in the matter of cost, the new article is the more economical. Ashes, or refuse matter from coal fires, with or without fresh coal, may also be utilized.

A new English pattern of stair thread is made of alternate strips of lead and steel, the lead furnishing foothold and the steel preventing wear. The lead is cast in grooves in a plate of steel, and it is asserted that this form of step has unusual durability, not wearing smooth even under heavy travel.

A photographic journal states that by treating resin with sulphur to about two hundred and fifty degrees Cent., a reaction takes place, attended by the evolution of sulphuretted hydrogen, and leading to the formation of an almost black pitchy substance containing sulphur and resembling considerably the well-known Syrian asphalt in many of its properties. Among these is its quality of being insoluble in alcohol, but it dissolves readily in chloroform and benzine, and is also sensitive to light in the same way as Syrian asphalt, for which latter it can be substituted in photographic work.

ELECTRIC LIGHT AND HEAT.

Their Cost Can Be Reduced to One-Fourth—Deposition of Pure Metals.

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A blazing pine knot or the glowing embers of a hearth have in their time enabled a good many men to read their newspapers and books. Primitive though such illumination may be, it has something in common with the latest and best light—the electric. Remove an ember from the grate so that the draught will no longer play upon it and instantly it begins to lose brightness, although its temperature falls in nothing like the same degree. A luminous ray, from whatever source, can only be had from a highly heated surface; and its intensity increases much faster than the rise in temperature which creates it. This truth was borne out in the early experiments with electricity as a light-bringer. In seeking a substance which the current might raise to white heat, inventors tried iron and platinum, but before either could be brought to a satisfactory radiance, the intensity of electric heat had melted it. Carbon, meantime, was giving a brilliant light in the arc lamp, and the question rose if there was any means of adapting it to incandescent illumination. The quest for a suitable carbon filament occupied years and required enormous outlay. Every characteristic North American fibre was tested in vain. Explorers were despatched to Brazil, to lands remoter still, to gather other fibres in forest and jungle; at the end of many thousand experiments finely divided strips of bamboo were found to give the best results. Further success was reached when art as well as nature was laid under contribution. Paper and thread were charred with scrupulous care, and carbon of the finest grain reduced to powder was moulded under pressure into delicate threads, yielding light of brilliant quality. Collodion, too, in narrow shreds was used with success.

Precisely how the filaments of the American incandescent lamps of to-day are made is a trade secret. The manufacturers prefer to trust the honor of their employees rather than to depend on the protection of the Patent Office.

LAMP MAKING.

Certain interesting steps of the process, however, are matters of public information. The first carbon filaments made seldom lasted more than fifty hours, rendering the cost of lamp renewal as much as the cost of current. In endeavoring to prolong the life of a lamp it was noticed that the filament was brighter at some points than others, indicating a variation of size. Could this be remedied? Could the filament be made of uniform diameter? Fortunately, yes. Several years before, M. Duprez, a French chemist, had recorded one of those observations so common in science, which, barren at the time they occur, afterward spring into fruitfulness through disclosing relationship to a puzzling problem. He noticed that carbon heated in an atmosphere of hydro-carbon received a deposit of an extremely dense form of carbon upon its surface. Here lay the key to increasing the durability of the lamp filament. Immersing it while luminous in a heavy hydro-carbon gas or liquid, it took on a solid coating, and where the filament was hottest and therefore thinnest the deposit became thickest. In this ingenious fashion the thread was made to repair its own defects, with marked improvement in lasting quality. To a further experimental refinement the incandescent lamp owes another point of its present excellence. For a lamp's success it is essential that the air be exhausted from its bulb as thoroughly as possible. Notwithstanding the use of the best pump, Mr. Swan, one of the pioneers of electric lighting, detected that his filaments were attacked by oxygen. It occurred to him that perhaps a little of this gas might have been left in the substance of the carbon itself, for he well knew how strong was the affinity between gases and porous forms of carbon. Thought he, it may be that if the filament were kept aglow during the pumping operation the oxygen could be dislodged. Experiment proved the soundness of his surmise and another advance in lamp making was scored. In leading the wires bearing a current into a lamp inventors encountered a good deal of difficulty. This was overcome on discovery that platinum, when heated, has much the same rate of expansibility as glass.

CONTINUOUS AND ALTERNATING CURRENTS.

In producing a current for lighting the choice lies between two plans, that of a continuous current, usually of comparatively low voltage, or pressure, and that of an alternating one, usually, but not necessarily, of high voltage. The alternating current, which may have its polarity reversed 100 to 1,000 times a second, has the advantage of lending itself to economical transformation, that is to the production of changes in its pressure. It can be regulated also with less loss of energy than a continuous electrical stream. The continuous current when furnished, as it usually is, at 250 volts, is well within the safety limit, and on the three-wire system supplies incandescent lamps at 125 volts, avoiding the toll exacted by even the best transformer. This is the current suitable for compact city circuits; with a scattered circle of custom, such as that of a suburban district, the alternating system is preferred.

LAMPS OF NEW SIMPLICITY.

An arc light being five times as brilliant as an incandescent lamp, in proportion to the current supplied, there is a widespread demand for an arc lamp of moderate size suitable for interior illumination. Hence a variety of designs adapted to low-voltage incandescent circuits. In this branch of invention German electricians have brought out a better device than any originated on this side the ocean. They have made a lamp of very convenient size and form, which needs but half the current required in the best American model. As shown at the Frankfort Exhibition last summer, this contrivance was so simply put together that it was not beyond the capacity of an intelligent domestic to trim it. An important point this, for the German custom is that the company which generates the current does nothing more than deliver it. The customer using such lamps as he chooses manages them himself. Indeed, in Germany, the day is at hand when electric lamps will be bought at the grocer's, just as oil lamps for kerosene lamps are now. And no reason exists why the remainder of the world should linger behind Germany. What bars the way to the universal use of the clean, pure, brilliant electric light? An oil lamp or a gas jet pouring its foul and heated products into the air of a house, is really of the same category of illuminants as the primitive pine knot. In fact, the pine knot that sends its gases up a chimney is, in that respect at least, decidedly superior.

THE ELECTRIC LIGHT IN UNIVERSAL USE.

The electric light, perfect as it is, would know no rival were its cost brought within an easily feasible limit. Increase in its popularity and reduction in its price have, it is true, gone hand in hand from the day of its introduction. Yet the consumption of the electric light is but a small fraction of what it can be made to be. In New York city, for example, the leading electric light company gained 70 per cent. last year in its aggregate of customers, yet at the end of the twelvemonth their number was only 2,875. A fair estimate of the grand total of electric consumers in the metropolis, including patrons of other companies and users of isolated plants, would be 5,000. What is this number compared to the city's population? What would 5,000 consumers of water have to pay were the mains of Croton laid solely for their benefit? So the query suggests itself. What reduction in price would be practicable were electric light, like water, provided in every house in New York? The question is pertinent at this time, when electricians are agreed that the first experimental stage of their art has closed, leaving the essentials in production and distribution at the point of practical perfection. During the years of the immediate future progress lies in bringing to every man's door the Proteus, which is light, motive power, heat, or chemical energy, as its master wills.

WHAT MIGHT BE DONE FOR NEW YORK.

Let us briefly consider how this may be done, as estimated by Mr. John Van Vleck, one of the foremost electrical engineers of New York. His computations chiefly turn on the immense economy which attends doing work on a large instead of a small scale. In arriving at the conclusion that the cost of current could be reduced to one-fourth or one-fifth its present figure, he takes account of what may be saved in production, transmission, and varied service. He would begin by securing for a generating station a suburban tract, say in the meadows of New Jersey, just beyond the Hudson. Instead of occupying city land of enormous value, the site would call for but moderate outlay. From a railroad siding culm and other cheap fuels could be delivered at the furnace doors. Steam engines of the marine type, multiple expansion, operated at a pressure of 250 to 300 pounds to the square inch, could be employed—engines such as those recently erected in the new metropolitan station of the Edison Company in Elm street. With such a plant, working in units of not less than 2,000 or 3,000 horse power, the consumption of coal would be half the quantity usual in central stations. In generating the current, three-phase dynamos, such as those erected at Lauffen, in Germany, last summer, could be employed. Taking a leaf out of the experience gained in transmitting electricity from Lauffen to Frankfort, the transformer at the producing station should lift to a pressure of 10,000 volts.

For the safe and economical transmission of such a current to and through New York, the Ferranti conductor is proposed. This conductor consists of a thick, hollow tube of copper around which is wrapped 400 to 500 thicknesses of paper impregnated with ozokerite, one of the best insulators known. Encircling the paper is an annular tube of copper, which serves as the return conductor, and may, if desired, safely be connected with the ground. This second tube, covered with more paper and a stout iron pipe, is laid in a subway or under water. The security attending the Ferranti conductor has been abundantly demonstrated. When, for example, it has been pierced or divided by an axe, the current has passed from the core to its metallic covering without doing the slightest damage. Its efficiency is not less remarkable than its safety. Were a stretch of it laid from New York to Buffalo, it would offer no more resistance than a mile of the subway conductor now doing duty in Broadway. With feasible improvements, which would add but one-fifth to its cost, the Ferranti main could carry a current of 50,000 volts as effectively as it now conveys one of 10,000.

Even if the present low pressures of 250 to 1,000 volts were to remain unchanged, there would be decided gain in substituting wholesale for retail methods of distribution. To lay wires of tenfold capacity would call for but five times the existing investment. An advantage much greater than this is to be reaped by increase of electrical pressure. With no change of dimensions a conductor will transmit ten times as much current at 10,000 volts as at 1,000. The economy here has justly been compared to the benefit which attends the use of high pressure steam in engines.

In bringing the current across the river from the generating station to New York the conductor would, in all probability, act more effectively if laid as a cable under the Hudson than if it took its way through a bridge or tunnel. It has been observed that mains behave better under water than in the ground, perhaps from being exposed to much narrower fluctuations of temperature. Having reached the shores of Manhattan the current could be taken to convenient centres for transformation to low and perfectly safe voltages. It would thence be delivered for service in lamps, motors, heaters, and plating baths. Telegraph offices, too, would be likely to demand it. In the rebuilt headquarters of the Western Union, a compact engine and dynamo are now providing current instead of the immense battery formerly employed, wresting another province from chemical electricity.

VARIED SERVICE.

With the very diversified applications of the current an important saving comes in. As motive power it is in demand during several hours of the day when but few lamps are burning. The same thing is true of its manifold uses in electro-deposition. This enables the plant at the producing station to be employed much more fully and evenly than would otherwise be the case. And engines and dynamos, like men, earn most when they are doing their full stint.

Mr. Van Vleck's plans, if put in use, would probably realize at a bound an expansion of electrical demand, such as on existing lines of supply would come only at the end of a lengthy roll of years, if ever. His methods are available not only for New York, but for every other American city unblest with cheap water power. In taking the steps indicated the electrical engineers of America would but follow a line of development already marked out in the practice of their brethren across the sea, and to some extent already begun here and there in the United States. In England and Germany the steam pressures at central stations are commonly much higher than the American standard; dynamos are of better design than those in this country; the voltages employed in transmission are generally higher, as between Deptford and London, for instance; and in every detail of distribution a close economy has been studied with results very desirable here. As a consequence, in several cities the current has been brought to so low a price that isolated plants for lighting factories, theatres, and the like have been abandoned, and the central station has become the exclusive purveyor in its district.

ELECTRIC SMELTING.

But for one limitation electricity would be adopted not only for lighting and as motive power, but for heating. Generated as it usually is by a steam engine, it has to pay the weighty exaction demanded by the engine in converting heat into work—a levy never less than 85 per cent., and generally exceeding 90. Scanning the horizon as keenly as he may, the electrician finds it bare of promise for the supersedure of the steam engine. While this continues to be his fortune, the separate fires for heating and cooking we know so well will remain to demand care and drudgery. Although electricity cannot be economically applied to ordinary warming and cooking, it yet can perform special tasks of heating in much the cheapest and most effective way. In the Cowles furnace a smelter can take a pair of electrodes, or current carriers, into a mass of refractory metal, or ore, and gain results hardly possible in a fuel furnace. Heat of any desired intensity is liberated at the exact point where there is work for it to do, not outside a retort, but within it, exerting its full effect at the very core of the materials to be treated. To this process is due the marvellous cheapening of aluminium within the past few years, as well as the supply at moderate prices of aluminium and other alloys of the utmost value in the arts.

ELECTRIC WELDING.

The metal worker is further indebted to the electric current. By methods perfected through the labors of Prof. Elihu Thomson electric heat is now in wide acceptance for welding. So much is the operation simplified that a machine all but automatic performs it with great rapidity. The operator's care is limited to feeding the machine and disconnecting the current the instant it has finished its work. The machine welds the tires of the wheels for bicycles, carriages, and wagons, and it joins pipes and bandsaws with a bond not only stronger than that made by the blacksmith, but stronger than the metal itself proves at any other point. In uniting wires for the telegraph service it overcomes the loss of current taking place in the old-fashioned form of splicing; binding the wire wound around guns, it gives them added strength; in joining a whole breadth of steel cable for the standing rigging of a ship, it has performed a feat otherwise impossible. It brings ship chains and anchors to be one piece, and it makes a railroad chair one with its rail. In delicate work, as in fine brass or wrought-iron grills, electric welding produces no dirt, tarnish, or discolorations. Moreover, in the field of repair, it fills a place of its own creation. A broken propeller blade or engine shaft can be easily brought to welding heat at the point of fracture. There is an important saving of time and money when the repairer can thus be taken to its work, instead of the work having to go to the repairer. In a minor direction this new method is applied in lumber mills, where teeth accidentally broken from a saw are replaced in a minute or two. In every task to which the current is thus applied its effectiveness is hastened by a peculiarity of electrical conduction. When two pieces of metal touch each other at any point where their contact is imperfect, the current is resisted, as the phrase goes, and resistance means a heating effect. Proceeding from a point or two, contact spreads until the fusion in which welding is accomplished takes place.

Sometimes the metal worker employs electric heat at a temperature much below that necessary in welding. He uses it to soften a strip, bar, or rod which has to be bent, twisted, or coiled. In this branch of his art he is wont to excite the onlooker's wonder by tying a knot in a length of stout steel. By a new process he softens a rivet with electric heat, securing it by extreme pressure. In another application of the current he cuts away sheet metal as if it were wax. Taking the electric arc, such as serves for out-of-door illumination, he has an agent more effective than the blow-pipe and only one-fourth as costly. Were it not for its blinding glare its field would be much more extensive than it is.

THE CURRENT PURIFIES METALS.

Copper for conductors should be of the most possible purity, for pure copper means economy of the most important kind to the electrician, especially at a time when long distance transmission is to the fore. At this point one line of electrical advance promotes another. What is virtually an electro-plating process deposits copper from solutions of ore in a higher state of purity than the chemists of the last generation thought possible. To-day the metal markets quote a copper of one to two per cent. above the purity par of the Matthiessen standard. One horse power usually deposits four pounds of this high grade metal per hour. And other metals share in the advantage which the cheap current of the dynamo has given to the arts. In the new public building of Philadelphia the tower for a distance of 213 feet to its crest is to be constructed of iron, the surface of which, some 100,000 square feet in area, is to be plated with aluminium.

A curious and unexpected fact which comes out in electro-deposition is that certain alloys are deposited precisely as if they were simple metals. Brass, for example, can be laid on as easily as copper.

PUBLIC CONSIDERATIONS.

Electricity as a chemical agent, as a source of light and heat, as a motive power for factories, houses, and railways, stands ready to confer benefits vastly greater than any it has so far been permitted to bestow. Fully to enter upon its new career it must be produced at the lowest possible cost. For such production the electrical engineer is thoroughly prepared. For its distribution at the lowest possible price the community must look to itself. In supplying a city with electricity competition is as much out of the question as in supplying water. In consideration of monopoly privileges a municipality should insure a perfect fairness of charge. Otherwise the most versatile and valuable servant of man must continue to stand idle in the market place.

GEORGE ILES.